

1 What is claimed is:

- 1 1. An isolated nucleic acid molecule selected from the group consisting of:
 - 2 a) a nucleic acid molecule comprising a nucleotide sequence which is at least
 - 3 80% identical to the nucleotide sequence of SEQ ID NO:1, or SEQ ID NO:3;
 - 4 b) a nucleic acid molecule comprising a fragment of at least 300 nucleotides of
 - 5 the nucleotide sequence of SEQ ID NO: 1, or SEQ ID NO:3;
 - 6 c) a nucleic acid molecule which encodes a polypeptide comprising the amino
 - 7 acid sequence of SEQ ID NO:2;
 - 8 d) a nucleic acid molecule which encodes a fragment of a polypeptide
 - 9 comprising the amino acid sequence of SEQ ID NO:2, wherein the fragment comprises at
 - 10 least 15 contiguous amino acids of SEQ ID NO: 2; and
 - 11 e) a nucleic acid molecule which encodes a naturally occurring allelic variant of
 - 12 a polypeptide comprising the amino acid sequence of SEQ ID NO:2, wherein the nucleic
 - 13 acid molecule hybridizes to a nucleic acid molecule comprising SEQ ID NO: 1, 3, or a
 - 14 complement thereof, under stringent conditions.

- 1 2. The isolated nucleic acid molecule of claim 1, which is selected from the
 - 2 group consisting of:
 - 3 a) a nucleic acid comprising the nucleotide sequence of SEQ ID NO: 1, SEQ ID
 - 4 NO:3; and
 - 5 b) a nucleic acid molecule which encodes a polypeptide comprising the amino
 - 6 acid sequence of SEQ ID NO:2.

- 1 3. The nucleic acid molecule of claim 1 further comprising a vector nucleic acid
 - 2 sequence.

- 1 4. The nucleic acid molecule of claim 1 further comprising a nucleic acid
 - 2 sequence encoding a heterologous polypeptide.

- 1 5. A host cell which contains the nucleic acid molecule of claim 1.

- 1 6. The host cell of claim 5 which is a mammalian host cell.

1 7. A non-human mammalian host cell containing the nucleic acid molecule of
2 claim 1.

1 8. An isolated polypeptide selected from the group consisting of:

2 a) a polypeptide which is encoded by a nucleic acid molecule comprising a
3 nucleotide sequence which is at least 80% identical to a nucleic acid comprising the
4 nucleotide sequence of SEQ ID NO: 1 or SEQ ID NO:3;

5 b) a naturally occurring allelic variant of a polypeptide comprising the amino
6 acid sequence of SEQ ID NO:2, wherein the polypeptide is encoded by a nucleic acid
7 molecule which hybridizes to a nucleic acid molecule comprising SEQ ID NO: 1, SEQ ID
8 NO:3, or a complement thereof under stringent conditions; and

9 c) a fragment of a polypeptide comprising the amino acid sequence of SEQ ID
10 NO:2, wherein the fragment comprises at least 15 contiguous amino acids of SEQ ID NO:2.

1 9. The isolated polypeptide of claim 8 comprising the amino acid sequence of
2 SEQ ID NO:2.

1 10. The polypeptide of claim 8 further comprising a heterologous amino acid
2 sequence.

1 11. An antibody which selectively binds to a polypeptide of claim 8.

1 12. A method for producing a polypeptide selected from the group consisting of:

2 a) a polypeptide comprising the amino acid sequence of SEQ ID NO:2;

3 b) a polypeptide comprising a fragment of the amino acid sequence of SEQ ID
4 NO:2, wherein the fragment comprises at least 15 contiguous amino acids of SEQ ID NO:2;
5 and

6 c) a naturally occurring allelic variant of a polypeptide comprising the amino
7 acid sequence of SEQ ID NO:2, wherein the polypeptide is encoded by a nucleic acid
8 molecule which hybridizes to a nucleic acid molecule comprising SEQ ID NO:1, SEQ ID
9 NO:3, or a complement thereof under stringent conditions;

10 the method comprising culturing the host cell of claim 5 under conditions in which
11 the nucleic acid molecule is expressed.

1 13. A method for detecting the presence of a polypeptide of claim 8 in a sample,
2 comprising:

- 3 a) contacting the sample with a compound which selectively binds to a
4 polypeptide of claim 8; and
5 b) determining whether the compound binds to the polypeptide in the sample.

1 14. The method of claim 13, wherein the compound which binds to the
2 polypeptide is an antibody.

1 15. A kit comprising a compound which selectively binds to a polypeptide of
2 claim 8 and instructions for use.

1 16. A method for detecting the presence of a nucleic acid molecule of claim 1 in
2 a sample, comprising the steps of:

- 3 a) contacting the sample with a nucleic acid probe or primer which selectively
4 hybridizes to the nucleic acid molecule; and
5 b) determining whether the nucleic acid probe or primer binds to a nucleic acid
6 molecule in the sample.

1 17. The method of claim 16, wherein the sample comprises mRNA molecules
2 and is contacted with a nucleic acid probe.

1 18. A kit comprising a compound which selectively hybridizes to a nucleic acid
2 molecule of claim 1 and instructions for use.

1 19. A method for identifying a compound which binds to a polypeptide of claim
2 8 comprising the steps of:

- 3 a) contacting a polypeptide, or a cell expressing a polypeptide of claim 8 with a
4 test compound; and
5 b) determining whether the polypeptide binds to the test compound.

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1 20. A method for modulating the activity of a polypeptide of claim 8 comprising
2 contacting a polypeptide or a cell expressing a polypeptide of claim 8 with a compound
3 which binds to the polypeptide in a sufficient concentration to modulate the activity of the
4 polypeptide.

1 21. A method of inhibiting the abnormal transport of ions across a biological
2 membrane of a 56201-expressing cell, comprising contacting the cell with a compound that
3 modulates the activity or expression of a polypeptide of claim 8, in an amount which is
4 effective to reduce or inhibit the abnormal transport of ions across the biological membrane.

1 22. The method of claim 21, wherein the compound is selected from the group
2 consisting of a peptide, a phosphopeptide, a small organic molecule, and an antibody.

1 23. The method of claim 21, wherein the cell is a neuron or a muscle cell.

1 24. The method of claim 21, wherein the ions are sodium ions.

1 25. A method of inhibiting the abnormal transport of ions across a biological
2 membrane of a 56201-expressing cell, comprising contacting the cell with a compound that
3 modulates the activity or expression of a nucleic acid of claim 1, in an amount which is
4 effective to reduce or inhibit the abnormal transport of ions across the biological membrane.

1 26. A method of treating or preventing, in a subject, a disorder characterized by
2 abnormal transport of ions across a biological membrane of a 56201-expressing cell,
3 comprising:
4 administering to the subject an effective amount of a compound that
5 modulates the activity or expression of a nucleic acid molecule of claim 1, such that the
6 abnormal transport of ions across the biological membrane of the 32244-expressing cell is
7 reduced or inhibited.

1 27. The method of claim 26, wherein the cell is a neuron or a muscle cell.

1 28. The method of claim 26, wherein the ions are sodium ions.